Abstract of the Disclosure

An adaptive RAKE receiving apparatus is constrained with at least one constraint for use in a mobile communication system. The apparatus includes an input signal generator for generating a complex received signal by gathering multi-path components during a corresponding transmitting signature; adaptive filters for filtering the complex received signal based on a tab weight that is adjusted at a predetermined period; channel estimators for estimating a phase component and an amplitude component of a particular user channel by using the filtered signals to generate channel estimating result signals; a signal recovering unit for recovering an original signal, which was transmitted from a particular user, by combining the filtered signals for all multi-path components and the channel estimating result signals; selecting unit for selecting one between a predetermined trained data signal and the recovered signal from the signal recovering unit; a reference signal generator for generating a reference signal by using the selected signal and the channel estimation result signal; an error calculator for comparing the filtered received signal with the reference signal to calculate error between these compared two signals; and a tap coefficient adjuster for adjusting tap coefficients of the adaptive filtering unit based on MMSE (Minimum Mean Square Error) criterion with at least one constraint.